

Interesting case conference

Extern supawit sriwichaiin





Identification data

Case male 75 year old

U/D: HTN, DLP, BPH

ภูมิลำเนา: เมืองเชียงราย



Chief Complaint

อ่อนแรงแขนขาด้านขวา 30 min pta



Vital signs at ER

BP: 135/88 mmHg

HR: 67 /min

RR: 20 /min

BT: 36.8 c

SpO2: 98% RA





Triage



Emergency

Primary asseement



Air way

Can talk, No stridor



Circulation



Exposure



Breathing

L



Disability

Primary asseement



A

Air way

Can talk, No stridor

C

Circulation

E

Exposure

B

Breathing

RR: 20/min,
Clear and equal BSBL

D

Disability



Primary assessment



A

Air way

Can talk, No stridor

C

Circulation

BP: 139/80 mmHg
PR: 67 mmHg
CRT < 2 sec

E

Exposure

B

Breathing

RR: 20/min,
Clear and equal BSBL

D

Disability



Primary assessment



A

Air way

Can talk, No stridor

C

Circulation

BP: 139/80 mmHg
PR: 67 mmHg
CRT < 2 sec

E

Exposure

B

Breathing

RR: 20/min,
Clear and equal BSBL

D

Disability

E4V5M6
Pupil 2 mm RTLBE
DTX 90 mg%





Primary assessment

A

Air way

Can talk, No stridor

C

Circulation

BP: 139/80 mmHg
PR: 67 mmHg
CRT < 2 sec

E

Exposure

Body temperature 36.8 c

B

Breathing

RR: 20/min,
Clear and equal BSBL

D

Disability

E4V5M6
Pupil 2 mm RTLBE
DTX 90 mg%



Present illness

30 min PTA, ขณะขับรถตุ๊กๆ ผู้ป่วยให้ประวัติว่ามีอาการแขนและขาขวาอ่อนแรง รู้สึกว่าหน้า
เบี้ยว พูดไม่ชัด ไม่เคยเป็นแบบนี้มาก่อน จากนั้นอาการไม่ดีขึ้น จึงมาโรงพยาบาล



Past illness

Underlying disease: Hypertension, Dyslipidemia, BPH

Current medication:

Amlodipine (5) 1x1 po pc

Simvastatin (20) 0.5 x 1 po hs

Losartan (50) 1x1 po pc

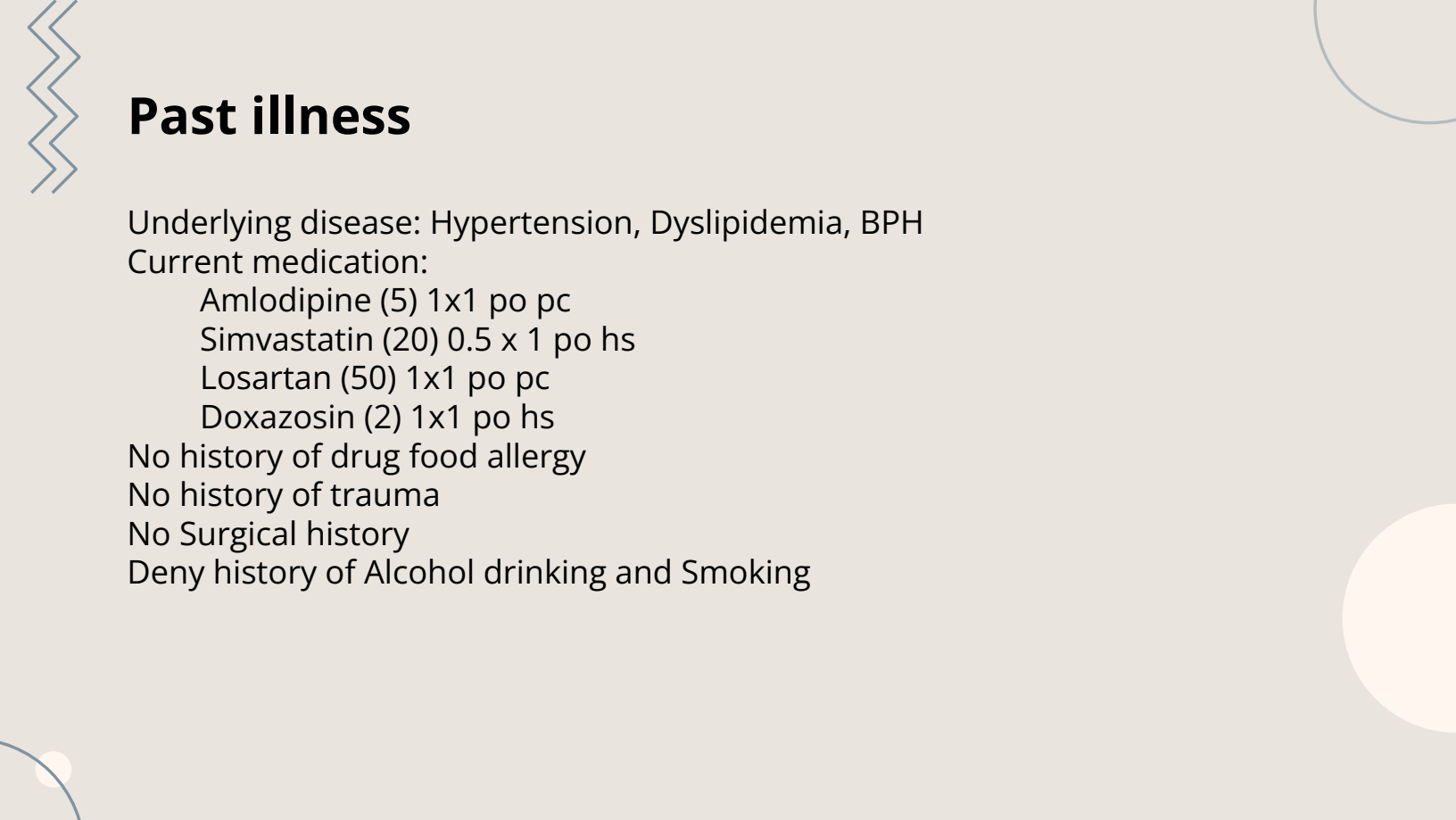
Doxazosin (2) 1x1 po hs

No history of drug food allergy

No history of trauma

No Surgical history

Deny history of Alcohol drinking and Smoking



Physical examination

General appearance: an old man with good consciousness

Vital signs: BT: 36.8 c, PR: 67 /min, RR 20 /min, BP: 139//80 mmHg

HEENT: No pale conjunctiva, anicteric sclera

Heart: Regular rhythm, No murmur

Lung: Clear and equal breath sound both lung

Abdomen: Active bowel sound, soft, not tender

Extremities: No pitting edema, CRT < 2 sec

Neuro: E4V5M6, Pupil 2 mm RTLBE Rt.Facial palsy, loss of Pin prick, Light touch, temperature sensation at right side, Dysarthria

Motor power Gr. V left side, Gr. 0 Rt. side, DTR 3+ all



Problem list



Problem list



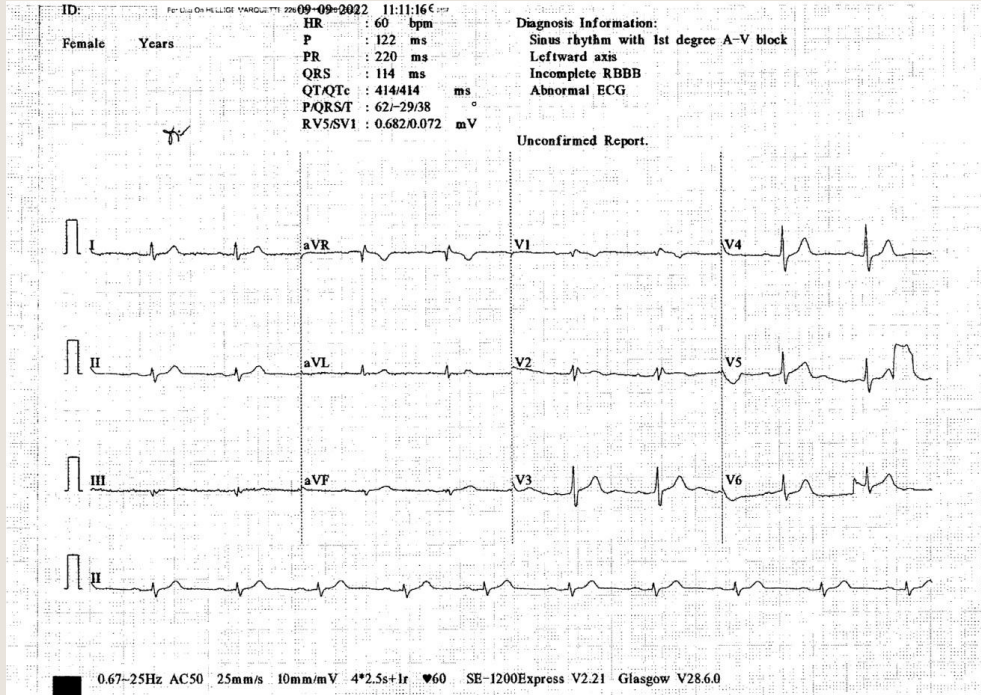


Provisional Diagnosis

Investigation



ECG 12 Leads



Chest X ray

SynapseRP, 1Monitor, CR Single CR Initial State

R Singkham, Yokyon
Singkham, Yokyon
1345364
19/11/1946
75Y
M
Chiangrai Prachanukroh Hospital
Chest film
Series 1
09/09/2022, 11:14:56
XN03358312
Singkham, Yokyon
1345364
19/11/1946
72Y
M
Chiangrai Prachanukroh Hospital
Chest film
Chest PA upright
24/01/2019, 14:14:00
XN02531540
LOC: -

mAs: 0
kVp: 0
DI: 0.67
ETI: 500
EI: 582
DoseAreaProduct: 0
Exposure: 0
Page: 1 of 1

ER
S: ---
Z: 0.25
C: 8422
W: 11504
IM: 1
Page: 1 of 1

S: -
Z: 0.25
C: 744
W: 1271
IM: 1

Laboratory investigation

GLUCOSE	74 - 106	90	mg%	
LACTIC ACID (NAPHA)	1 - 1.8	2.14	mmol/L	
TOTAL PROTEIN	6.6 - 8.3	6.8	gm/dl	
CALCIUM	8.8 - 10.6	9.9	mg/dl	
SODIUM(NA)	136 - 146	139	mmol/L	
BUN	8.9 - 20.6	15	mg/dl	
CREATININE	0.72 - 1.18	0.75	mg/dl	
MAGNESIUM	1.8 - 2.6	2.0	mg/dl	
PHOSPHOUROUS(PO4)	2.5 - 4.5	1.7	mg/dl	
eGFR	60 - 120	90		
POTASSIUM(K)	3.5 - 5.1	3.7	mmol/L	
ALBUMIN	3.5 - 5.2	3.8	gm/dl	
GLOBULIN	#	3.0	gm/dl	
CHLORIDE(CL)	101 - 109	110	mmol/L	
CARBONDIOXIDE(CO2)	21 - 31	23	mmol/L	
TOTAL BILIRUBIN	0.3 - 1.2	0.5	mg/dl	
DIRECT BILIRUBIN	0 - 0.2	0.2	mg/dl	
AST(SGOT)	0 - 50	32	U/L	
ALT(SGPT)	0 - 50	21	U/L	
ALKALINE PHOSPHATASE	30 - 120	104	U/L	
ผลวันที่ 09/09/2565				
hsTroponin I	#	< 1.9	pg/mL	

CBC, PT, PTT

PTT	23.2 - 36.9	28.9	sec	
PT	9.2 - 13.1	9.9	sec	
Slide NO.	#	2128		
WBC count	4200 - 10900	5900	cell/cu.mm	
Control	#	11.1	sec	
CONTROL	#	29.8	sec	
Correct WBC	#	5900		
INR	#	0.89		
Hb	12.9 - 17.1	14.1	g/dL	
Hct	38 - 52	43.5	%	
MCV	80 - 98	80.5	fl	
MCH	26 - 33	26.1	pg	
MCHC	31 - 36	32.5	g/dL	
RDW	11.2 - 14.8	15.3	%	
RBC	3.7 - 6.7	5.40	M/ul	
band form	0 - 5	0.0	%	
Neutrophil	35 - 70	51.2	%	
Lymphocyte	23 - 54	32.4	%	
Monocyte	4 - 11	11.5	%	
Eosinophil	0 - 11	3.4	%	
Basophil	0 - 2	1.5	%	
NRBC	#	0		
Platelet	#	Adequate		
Platelet count	160000 - 440000	197000	cell/cu.mm	
ANC	#	3,021	cells/ul	

CT Brain NC

CT Brain non contrast

Patchy hypodense lesion at left caudate nucleus and anterior limb of the left internal capsule. Hyperacute-acute infarction is possible. Please correlate with clinical context.

- Multiple small lacunar infarctions at left caudate&lentiform nuclei, external capsule and left corona radiata.
- Small patchy hypodense lesions of WM change at subcortical WM of bilateral frontal and parietal lobes. Mild diffuse brain atrophy is noted.

IMPRESSION:

- Acute left MCA infarction with hemorrhagic transformation.

Management at ER

- insert NG, Foley cath
- CXR CT Brain non contrast
- Consult neuro medicine for rTPA + Role of embolectomy
- rt-PA 5.2 U in 1 min then 47.72 U IV drip in 1 hour
- Admit Stroke unit





“Ischemic stroke”

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Definition of stroke

any disease process that interrupts blood flow to the brain. Injury is related to the loss of oxygen and glucose substrates necessary for high-energy phosphate production and the presence of mediators of secondary cellular injury. Subsequent factors, such as edema and mass effect,

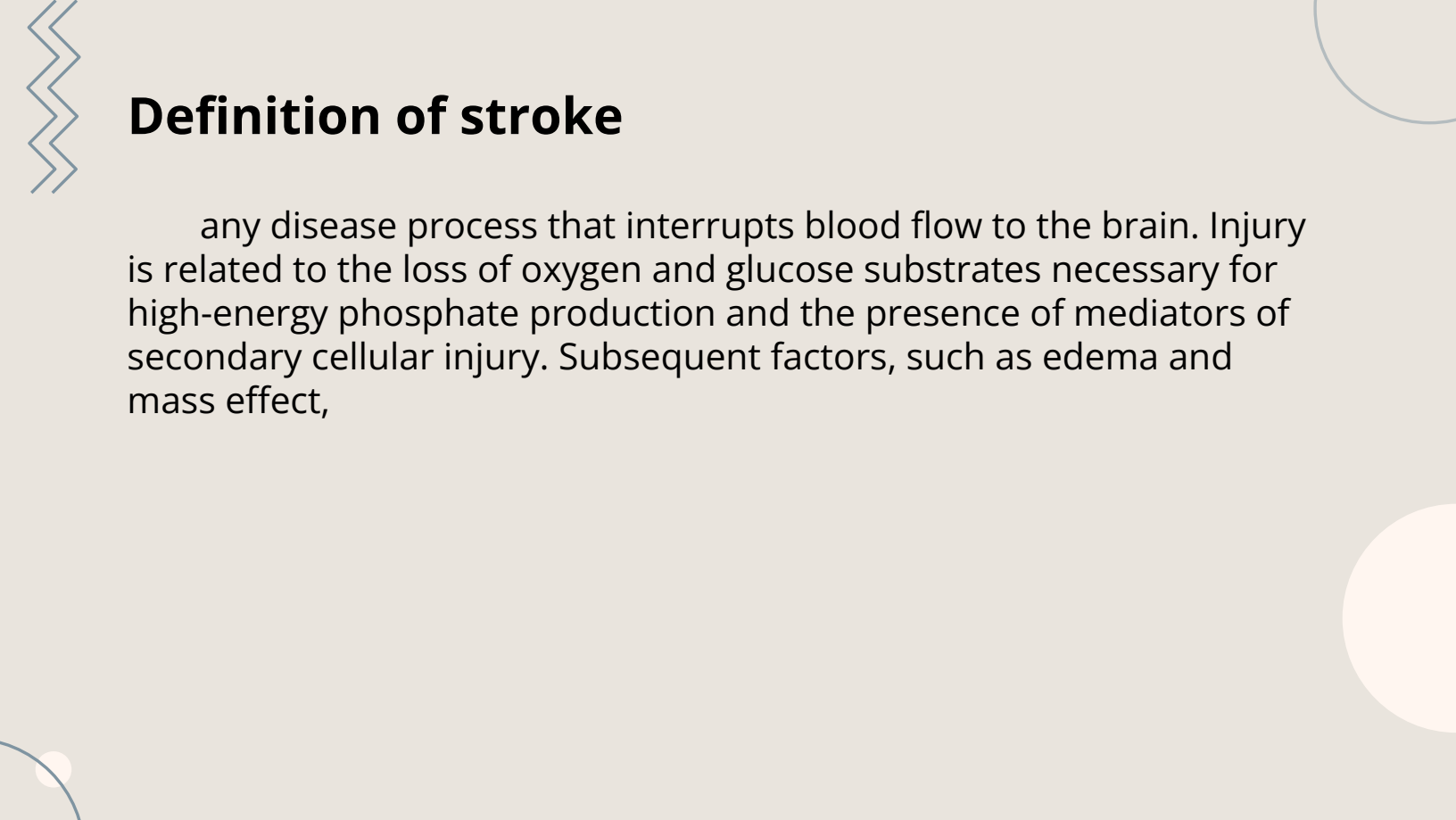


TABLE 167-2 Stroke Classification

Stroke Type	Mechanism	Major Causes	Clinical Notes
Ischemic			
Thrombotic	Narrowing of a damaged vascular lumen by an in situ process—usually clot formation	Atherosclerosis Vasculitis Arterial dissection Polycythemia Hypercoagulable state Infection (human immunodeficiency virus infection, syphilis, trichinosis, tuberculosis, aspergillosis)	Symptoms often have gradual onset and may wax and wane. Common cause of transient ischemic attack.
Embolic	Obstruction of a normal vascular lumen by intravascular material from a remote source	Valvular vegetations Mural thrombi Paradoxical emboli Cardiac tumors (myxomas) Arterial-arterial emboli from proximal source Fat emboli Particulate emboli (IV drug use) Septic emboli	Typically sudden in onset. Account for 20% of ischemic strokes.
Hypoperfusion	Low-blood flow state leading to hypoperfusion of the brain	Cardiac failure resulting in systemic hypotension	Diffuse injury pattern in watershed regions. Symptoms may wax and wane with hemodynamic factors.
Hemorrhagic			
Intracerebral	Intraparenchymal hemorrhage from previously weakened arterioles	Hypertension Amyloidosis Iatrogenic anticoagulation Vascular malformations Cocaine use	Intracranial pressure rise causes local neuronal damage. Secondary vasoconstriction mediated by blood breakdown products or neuronal mechanisms (diaschisis) can cause remote perfusion changes. Risks include advanced age, history of stroke, and tobacco or alcohol use. More common in those of Asian or African descent.
Nontraumatic subarachnoid	Hemorrhage into subarachnoid space	Berry aneurysm rupture Vascular malformation rupture	May be preceded by a sentinel headache (“warning leak”).



Pre hospital phase



Acute hospital phase



Transfer to local hospital



Discharge & rehabilitation





When to suspected stroke?



Balance

Ataxia. Headache
Dizziness



Eye

Blurred vision



Face

Facial palsy



Arm

Arm/Leg weakness



Speech

Difficult speech



Time

Golden period < 4.5 hr





MANAGEMENT COMPONENT

TARGET TIME FRAME

Door to doctor	10 minutes
Door to CT completion	25 minutes
Door to CT scan reading	45 minutes
Door to treatment	60 minutes
Access to neurologic expertise*	15 minutes
Access to neurosurgical expertise*	2 hours





Rule out stroke mimic condition

TABLE 167-5 Stroke Mimics

Disorder	Distinguishing Clinical Features
Seizures/postictal paralysis (Todd's paralysis)	Transient paralysis following a seizure, which typically disappears quickly; can be confused with transient ischemic attack. Seizures can be secondary to a cerebrovascular accident.
Syncope	No persistent or associated neurologic symptoms.
Meningitis/encephalitis	Fever, immunocompromised state may be present, meningismus, detectable on lumbar puncture.
Complicated migraine	History of similar episodes, preceding aura, headache.
Brain neoplasm or abscess	Focal neurologic findings, signs of infection, detectable by imaging.
Epidural/subdural hematoma	History of trauma, alcoholism, anticoagulant use, bleeding disorder; detectable by imaging.
Subarachnoid hemorrhage	Sudden onset of severe headache.*
Hypoglycemia	Can be detected by bedside glucose measurement, history of diabetes mellitus.
Hyponatremia	History of diuretic use, neoplasm, excessive free water intake.
Hypertensive encephalopathy	Gradual onset; global cerebral dysfunction, headache, delirium, hypertension, cerebral edema.
Hyperosmotic coma	Extremely high glucose levels, history of diabetes mellitus.

Wernicke's encephalopathy	History of alcoholism or malnutrition; triad of ataxia, ophthalmoplegia, and confusion.
Labyrinthitis	Predominantly vestibular symptoms; patient should have no other focal findings; can be confused with cerebellar stroke.
Drug toxicity (lithium, phenytoin, carbamazepine)	Can be detected by particular toxidromes and elevated blood levels. Phenytoin and carbamazepine toxicity may present with ataxia, vertigo, nausea, and abnormal reflexes.
Bell's palsy	Neurologic deficit confined to isolated <i>peripheral</i> seventh nerve palsy; often associated with younger age.
Ménière's disease	History of recurrent episodes dominated by vertigo symptoms, tinnitus, deafness.
Demyelinating disease (multiple sclerosis)	Gradual onset. Patient may have a history of multiple episodes of neurologic findings in multifocal anatomic distributions.
Conversion disorder	No cranial nerve findings, nonanatomic distribution of findings (e.g., midline sensory loss), inconsistent history or examination findings.

Management of Ischemic stroke



Generaal management

O2 Support Keep SpO2 > 94%

IV Hydration

Eliminate Fever



Monitoring

BP Keep < 185/110 mmHg

Blood sugar Keep 140-180 mg%

ECG monitor 24 hours

NIHSS Score q 15 min



Thrombolytic treatment

rTPA as indicated

Thrombectomy as indicated

Intravenous Alteplase

TABLE 167-11 Summary of American Heart Association (AHA)/American Stroke Association (ASA) 2018 Inclusion/Exclusion Criteria for IV Alteplase in Acute Ischemic Stroke

Inclusion Criteria	
Onset of symptoms <3 h prior to thrombolytic administration	Defined as the time the patient was last known well or last known to be at their neurologic baseline.
Measurable diagnosis of acute ischemic stroke	Use of NIHSS score recommended. There is no upper or lower limit of NIHSS score for thrombolytics, as benefit may be seen with both mild but disabling stroke symptoms ¹⁷⁰ as well as in very severe strokes. ¹⁵⁸ Early improvement with residual moderate impairment and potential disability is not a contraindication.
Age ≥ 18 y	No upper age limit for <3 h last known well time administration.
Onset of symptoms from 3 to 4.5 h prior to rtPA administration	Must meet the above inclusion criteria, <i>plus</i> these additional inclusion criteria: Age ≤ 80 y No history of diabetes mellitus and prior stroke NIHSS score ≤ 25 Not taking oral anticoagulants No brain imaging evidence of ischemic injury involving greater than one third of the middle cerebral artery territory

Intravenous Alteplase

Exclusion Criteria	
Current use of glycoprotein IIb/IIIa receptor inhibitors	
Current infective endocarditis	
Known or suspected aortic arch dissection	
Intra-axial intracranial neoplasm	
Blood glucose level <50 milligrams/dL (2.7 mmol/L)	The glucose level should be normalized prior to thrombolytic administration.
Selected Additional Recommendations for Various Conditions	
Arterial puncture of noncompressible artery <7 d	The safety and efficacy of thrombolytics in this condition are unclear.
Arteriovenous malformation	The safety and efficacy of thrombolytics with this condition are unclear; however, thrombolytics may be considered in the case of severe stroke with unruptured/untreated intracranial arteriovenous malformation.
Dural puncture	Dural puncture (<7 d) is not a contraindication.
Eye hemorrhage	Diabetic retinal hemorrhage or other ophthalmologic hemorrhage is not a contraindication, but the benefits of thrombolytics must be weighed against the potential threat to sight.
Major surgery or major trauma (not involving the head) within preceding 14 d	rtPA may be carefully considered if the benefits outweigh risks.
Malignancy	Extra-axial intracranial neoplasm is not a contraindication. The safety and efficacy of thrombolytic administration in systemic malignancy are unclear.
Menstruation	Menstruation and menorrhagia without clinically significant anemia are not contraindications. Clinically significant anemia due to these processes mandates an emergent consultation with a gynecologist prior to thrombolytic administration
assays)	



Intravenous Alteplase

Route of Administration


- Dose: Alteplase 0.9 mg/kg (Max 90 mg IV)
- 10% Slowly push then Drip 90% in 1 hr

Repeat CT Brain non contrast after 24 hour





Blood pressure control in stroke patient

- Patient is eligible for rTPA
 - Before rTPA: Systolic <185 mmHg or diastolic <110 mmHg
 - Patient is ineligible for rTPA
 - Systolic BP < 220/120 mmHg
 - Medication
 - Nicardipine 5 mg/h IV, titrate up to desired effect by 2.5 mg/h q 5-15 mins, maximum 15 mg/h; or
 - Labetalol 10 mg IV followed by continuous IV infusion 2-8 mg/min
- 

Endovascular therapy with stent retriever

TABLE 167-13

AHA/ASA Indications for Endovascular Therapy With a Stent Retriever¹⁹⁶

- Prestroke mRS score 0 to 1
- Acute ischemic stroke receiving IV rtPA within 4.5 h of onset according to guidelines from professional medical societies
- Causative occlusion of the ICA or proximal MCA (M1)
- Age ≥ 18 y
- NIHSS score of ≥ 6
- ASPECTS of ≥ 6
- Treatment can be initiated (groin puncture) within 6 h of symptom onset

All 7 criteria need to be met for stent retriever endovascular therapy to be indicated.



Dispositioning

Admit Stroke Unit

Retained NG Foley cat before rt-PA

On 2 Cannula 3 LPM keep SpO₂ > 94%

IV rt-PA 10% IV Slowly push in 10 min then 90% IV drip in 1 hour

ECG 12 Leads

CXR + CT Brain non contrast

CBC, BUN, Cr, Elyte, Blood sugar,

